How Big a Hangover from the Stock and Housing Benders?

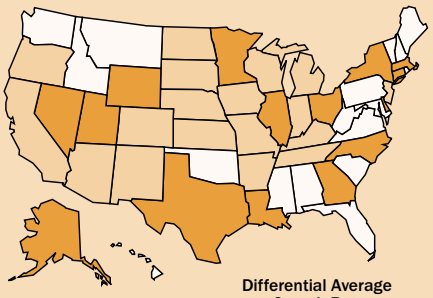
Collapsing home prices will affect Connecticut less than many other states, but evaporating equity values will hit us disproportionately.

BY STEVEN P. LANZA

Collapsing housing and stock market wealth has reduced households' willingness to consume and businesses' motivation to invest, in the process spawning the worst recession since the Great Depression. But the twin disasters may not affect all states equally. The evidence suggests that the implosion of home prices will have a smaller effect than average on Connecticut's economy, but the impact of evaporating equity values will be disproportionately large here.

For years, the economy got high on soaring asset values. Climbing even during the 2001 recession, housing prices doubled between 2000 and 2006, while stocks shot up by nearly as much in even less time. During the last expansion, jobs grew at a 1.5% annual clip, while real GDP sprinted ahead at rates that reached 7.5% (2003-Q3). Then the financial perfect storm made land. Home prices caved in, stocks indexes were cut in half, and jobs and GDP each headed toward a free fall.

CONNECTICUT BOASTS A HIGH DIFFERENTIAL* GDP GROWTH RATE



*Characteristics unique to each state (fixed effects) will, other things equal, give rise to differential growth rates.

SOURCE: *The Connecticut Economy*

Our addictions to the housing and stock markets had taken us to new economic heights. How low will going cold turkey now make us feel?

CAUSE OR COINCIDENCE?

Analysts agree that a strong correspondence exists between asset markets and the broader economy, but they differ over whether the association is coincidental or causal. It may be, for example, that the same lack of confidence that hobbles household consumption and business investment also leads to declines in housing and equity markets. Perhaps the asset markets are simply subject to the same underlying forces that buffet the overall economy.

But there are reasons to believe that asset markets directly trigger changes in aggregate economic activity. Lower share prices, for example, may make creditors less eager to lend, raising businesses' capital costs at the same time that the reduced share prices make it more difficult for them to generate cash in equity markets. Stockholders may also pressure company managers to trim workforces and cut costs in an effort to restore firms' profitability and revive stock prices.

Sliding equity values may crimp economic activity through a so-called wealth effect, too. Households base consumption decisions on both current and prospective future incomes—what Milton Friedman called "permanent income." Falling stock prices erode the value of investment portfolios, so households feel poorer and are likely to spend less. Firms with flagging share prices may also be less apt to pay dividends, so stockholders may suffer a simultaneous reduction in current income.

Another, often the major, source of accumulated wealth for many households is home equity. Modern financial markets provide ample opportunity for homeowners to tap this wealth through home equity loans and lines of credit. But as sinking home prices strip owners of the unencumbered interest in their properties, those opportunities are fast disappearing, leaving households with little choice but to rein in their spending.

A SIMPLE FRAMEWORK OF ANALYSIS

The current economic slump reflects severe erosion in demand for the economy's output, or gross domestic product (GDP). In equilibrium, the supply of output will equal the sum of the demand components: consumption, investment, exports less imports, and government spending. But when demand slumps, production slows, and the economy slides into recession.

The factors influencing demand vary with the component in question. In simplest form, consumption is a function of "disposable" (after-tax) income. Investment is influenced by the interest rate, and net exports by the exchange value of the dollar. Public spending is basically the result of political decisions, so to make the analysis more tractable I subtracted government from both sides of the supply-demand equality and focused more narrowly on the determinants of private-sector GDP.

The central question is this: after controlling for income, interest rates, and the value of the dollar, what effects do housing and stock prices have on the economy's performance?

To find out, I set up a simple regression model using a panel data set of all fifty states for the period 1975 to 2007—a total of 1600 observations. The regression modeled per-capita private GDP by state as a function of per capita disposable income, interest rates, and the exchange value of the dollar. But, key to the analysis, the model also included two other variables: a unique home price index (HPI) for each state as tracked by the Federal Housing Finance Agency (formerly OFHEO), and equity values as measured by the S&P 500 index. I adjusted all variables (except the exchange rate) for the changing level of prices over time.

Besides the variables included in the model, other unobserved or omitted factors specific to each state—such as the tax or regulatory climate—may affect economic performance. To control for these influences, I used a so-called fixed-effects model, which enables the regression to capture the influence of the omitted factors that change little over time, along with the more variable factors that are explicitly included.

YOUR NUMBER'S UP

The map on page 4 shows the distribution of these unobserved, fixed effects across states, from high to medium to low. Unobserved factors account for as much as a 7 percentage point difference in GDP performance across states. Connecticut falls into the group where fixed factors boost average GDP growth the most. Other things being equal across states (as measured by the variables explicitly in the model), we would expect output growth in Connecticut to exceed the rates of the lowest-tiered states by 1.8 percentage points, and of the mid-tier states by 0.8 points, on average.

The accompanying table shows the influence of the independent variables on the average economic performance of a state, after allowing for differential fixed effects. As expected, per capita disposable income exerts a strong and statistically significant effect on GDP: a 10 percent increase in income raises GDP by 8 percent. The effect likely works both directly (by boosting consumption), and indirectly (as higher consumption spurs business confidence and encourages investment).

Also, as expected, exchange rates are inversely related to GDP (with a one-year lag), although the effect is relatively small. With a p-value of 35%, the coefficient on interest rates was not significant.

The model also includes factors that capture some of the dynamics operating in the economy since the mid-1970s. The negative time trend suggests that GDP growth slowed from 1975 to 2007. A strongly significant coefficient on the gap between GDP

THE AVERAGE STATE IS SENSITIVE TO HOUSING, CONNECTICUT RESPONDS MORE TO STOCK PRICES

Variable	Coefficient	P-value
Per Capita Income	0.8033	0.0000
Home Prices	0.1368	0.0000
Stock Prices	0.0255	0.0001
Exchange Rate	-0.0007	0.0002
Interest Rate	-0.0009	0.3455
Trend	-0.0004	0.0003
GDP-Income Gap	0.1304	0.0000
CT Stocks	0.0616	0.0060
CT Home Prices	-0.0871	0.0597

Coefficient values measure the change in GDP associated with a change in the independent variables listed above. The p-values are estimates of the likelihood that these coefficient values occurred by chance. The smaller the p-value, the more statistically significant the result.

and disposable income suggests a constant proportionality between the two: over the long haul, these two variables tend to move pretty much in sync.

Of primary interest here, of course, are the values of the highly significant coefficients on home and stock prices. On average, a 10 percent decrease in current home prices is associated with a 1.4 percent decrease in GDP. A similar decline (lagged one year) in stock prices, however, only reduces GDP by 0.26 percent.

Therefore, changes in asset values have significant impacts on economic performance, but the influence of home prices is much larger on average than that of equity values. Why? Because home ownership is more widespread than stock ownership, and home price appreciation may have been viewed as relatively permanent, while stock market gains seemed less so. At any rate, these findings are broadly consistent with other studies in the literature (*e.g.*, Case, *et al.*, *Advances in Macroeconomics*, 2005, Issue 1).

THE LAND OF DISTINCTIVE HABITS

We know how states "typically" respond to changes in asset values, but does Connecticut follow the crowd or march to a different drumbeat? To answer that, the model contains one final layer of complexity: differential coefficient estimates of the housing and stock market variables in Connecticut.

As the table shows, the differential for current house prices in the Nutmeg State is -0.087. That means Connecticut's full reaction to changing house prices is only 0.0491, the sum of the average effect across all states (0.1368) and this differential (-0.0871). Therefore, a 10 percent decrease in home values will lower Connecticut GDP not by the average 1.4 percent nationally, but by only 0.5 percent, instead.

The stock market effect introduces another distinction. For all states, equity values enter the model with a lag; for example, a decrease in equity prices of 10 percent this year would lower GDP by 0.255 percent next year. But in Connecticut, that drop in stock prices this year would affect current-year GDP as well, by 0.616 percent. Thus, the long-run effect of changing equity prices is the sum of the variable's lagged (0.0255) and current (0.0616) coefficient values, or 0.0871. Therefore, Connecticut is more than three times as responsive to changing equity values as is the 50-state average.

What do these estimates imply for state GDP growth around the U.S.? Nationally, the HPI declined about 8 percent last year, while the S&P 500 lost about 20 percent in real terms. Thus across all states, reductions of these magnitudes will, over time, trim about 1.6 percentage points off real GDP growth. Two-thirds of the effect will trace to house prices and one-third to stock prices. And given the historic relation between GDP and jobs, states will on average lose 0.8 percent of their workers. That's just from plunging asset values; weakness on other economic fronts will only add to the total.

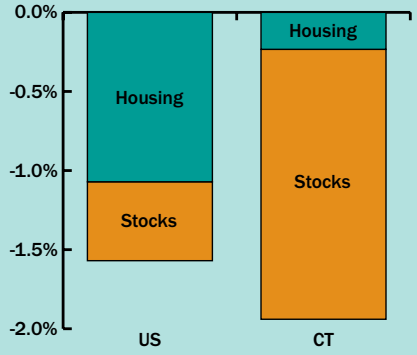
Connecticut's actual GDP hit would be more on the order of 1.9 percentage points, as the state's heightened sensitivity to stocks more than offsets its reduced sensitivity to home prices and the smaller relative decline (not quite 5%) in real estate values. Fully 90 percent of that change would stem from stocks, and only 10 percent from housing. These declines in asset values are also likely to cost Connecticut upwards of one percent of its workers (see bar graph).

What makes Connecticut less responsive to house prices but more responsive to the stock market? A greater share of Nutmeggers may hold stocks than the U.S. average, and state residents may have more money at stake in the market, too. Connecticut's economy is also more closely tied to Wall Street, with a relatively large concentration of jobs in insurance, banking and brokerage services—industries that have taken a beating of late.

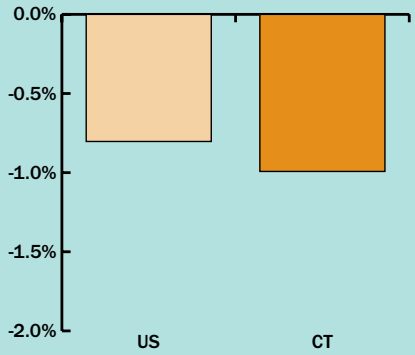
Housing also plays less of a role in Connecticut's economy than it does elsewhere. It has been fully two business cycles since Connecticut last saw the kind of frenzied home building that gripped much of the nation until recently. Nutmeggers' high incomes may also have reduced their need to rely on home equity gains to finance consumer purchases.

In the end, the current economic downturn may well produce a worse economic hangover in Connecticut than in the rest of the country. Not that the party here was any bigger—we just differ from the mean in our dependence on the twin elixirs of booming home and equity markets.

FALLING STOCKS SAP CONNECTICUT'S GDP...



...COSTING THE STATE A RELATIVELY LARGE SHARE OF JOBS



SOURCE: *The Connecticut Economy*.